

FIG. 5

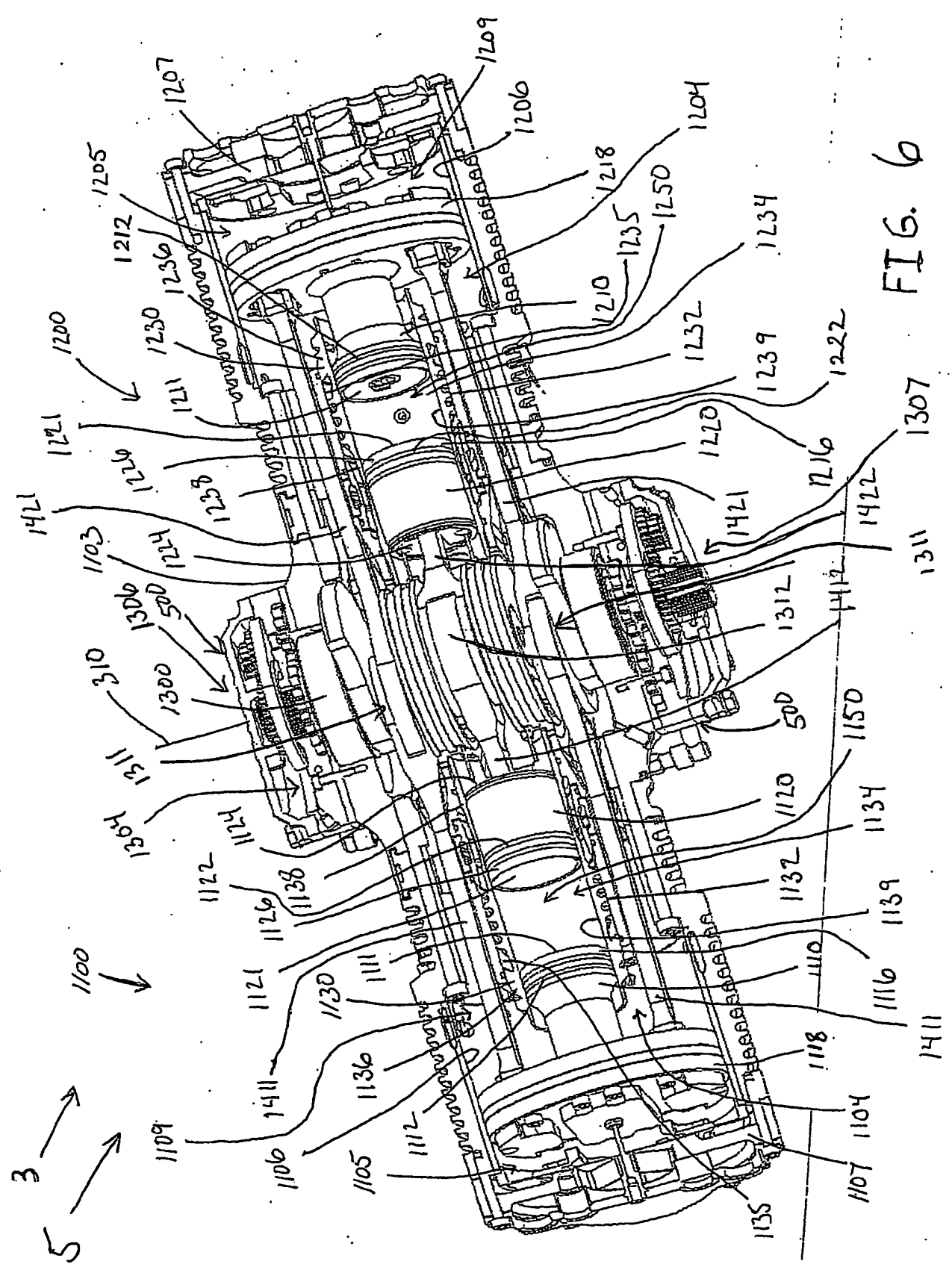


FIG. 6

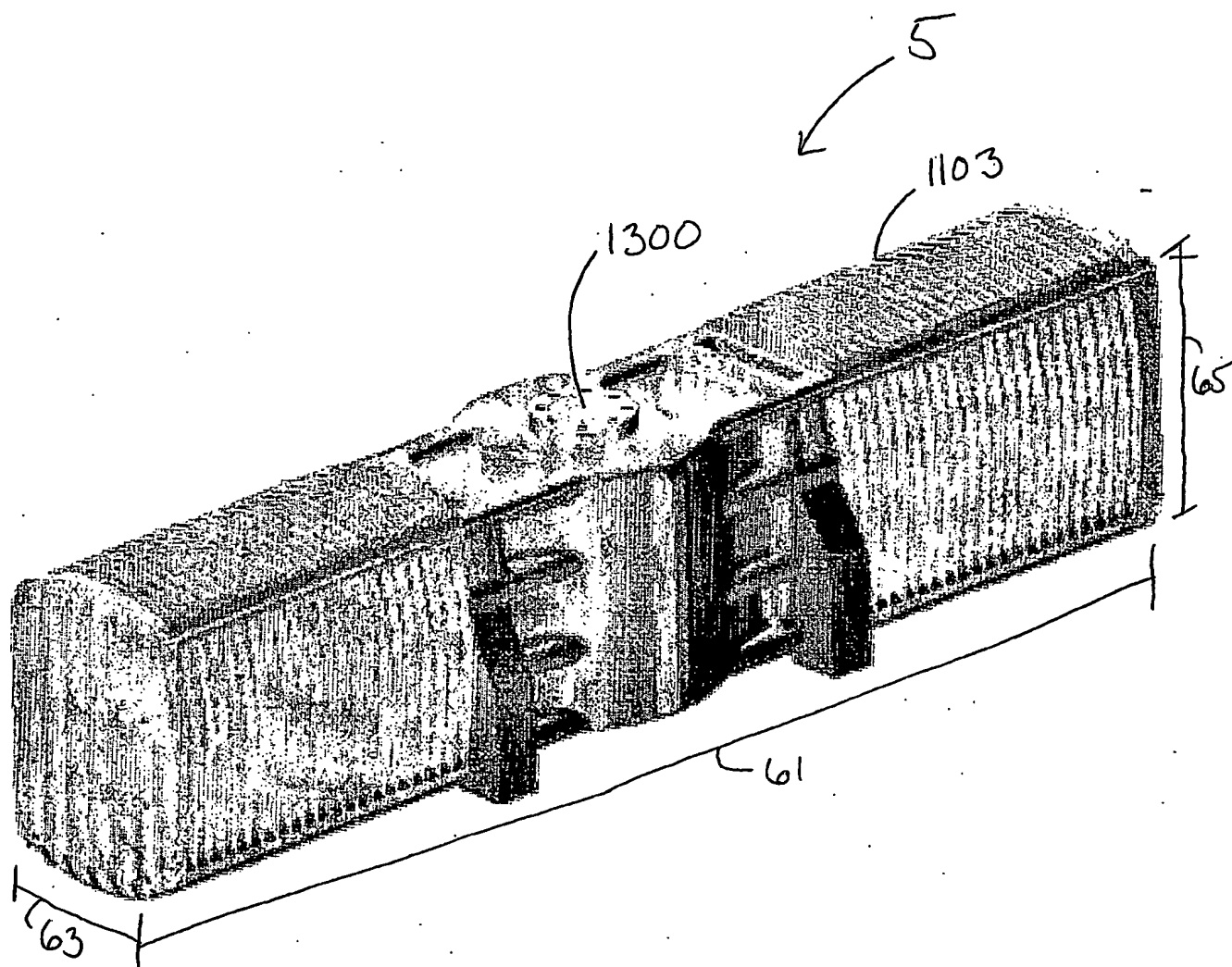
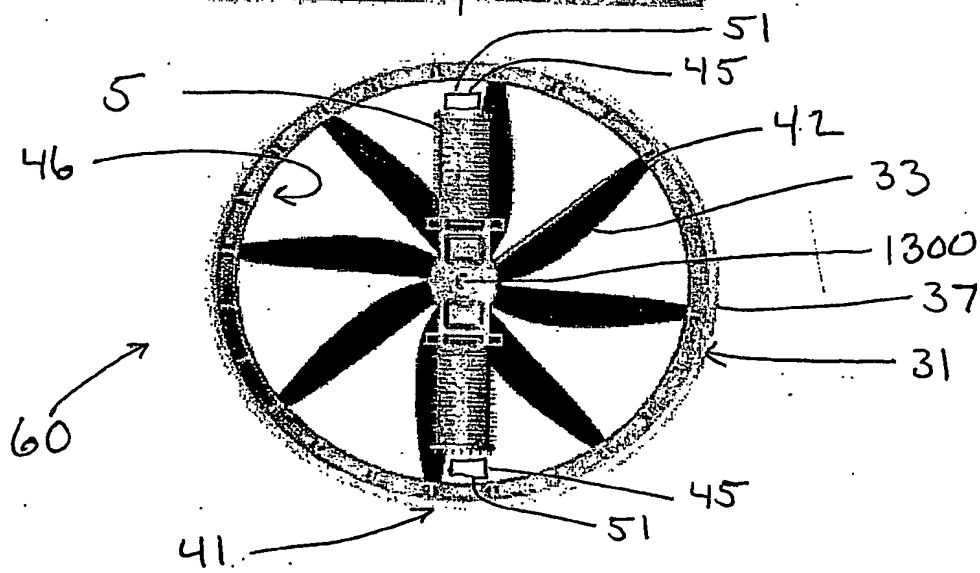
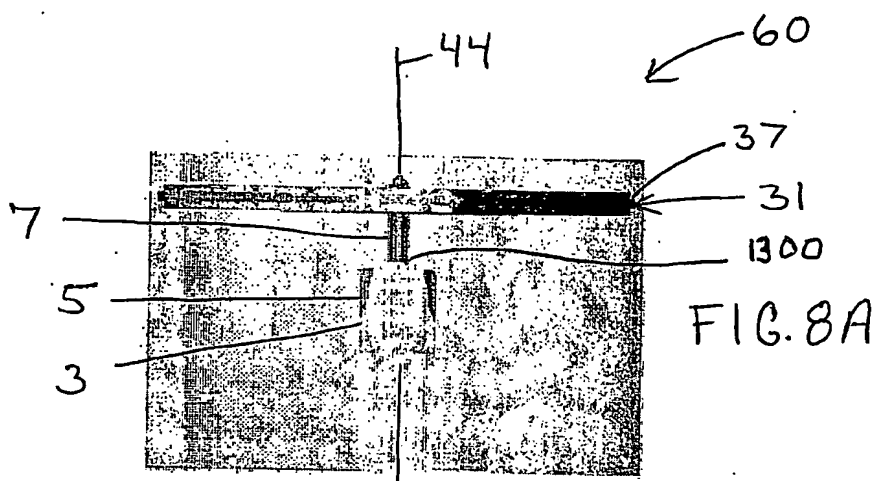


FIG. 7



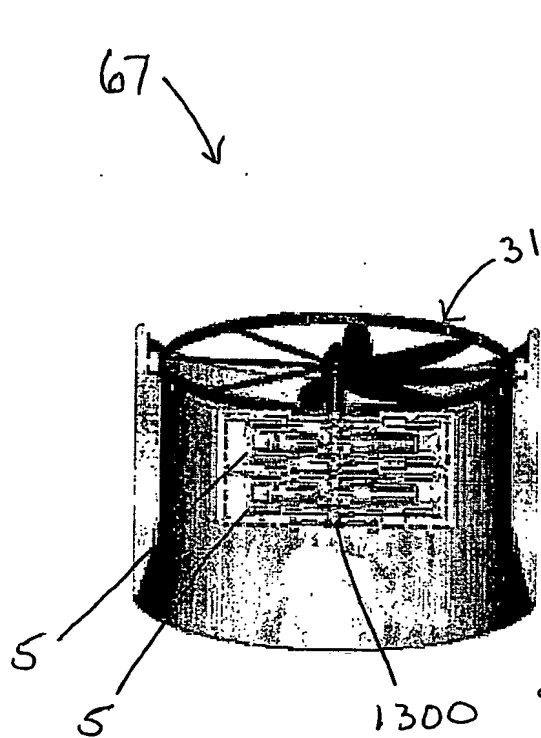


FIG. 9A

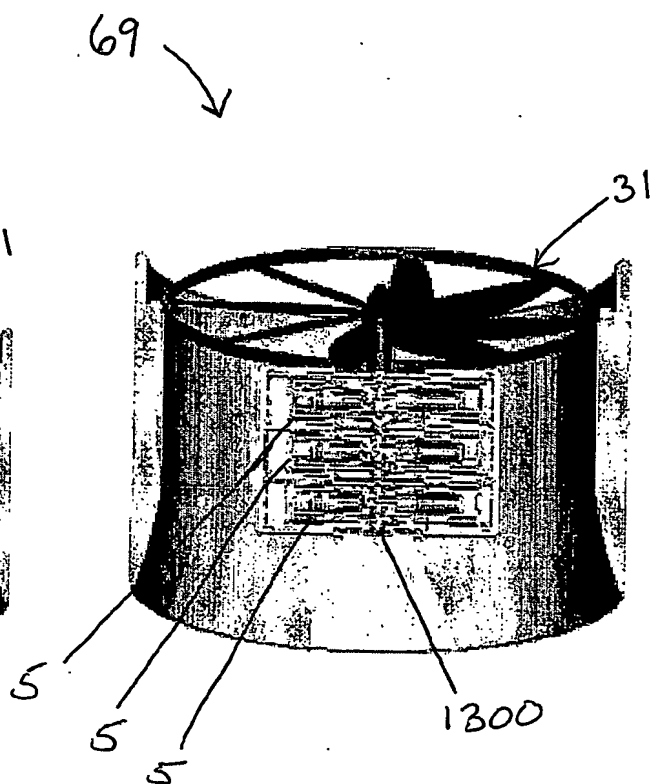


FIG. 9B

Engine Design Input Data

Cylinder Bore	B	32	mm
Engine Stroke	S	60	mm
Conrod Length	L	50	mm
Engine Speed	N	9182	rpm
Compression Ratio	CR	19	
Intake/Boost Pressure (abs)	Pi	0.94	bar
Intake/Boost Temperature	Ti	20	C
Fuel (D for diesel, G gasoline, M methanol)		d	
Stroke (FOUR for 4 stroke, TWO 2 stroke)		two	
Relative Air/Fuel ratio	Lambda	1.4	
Number of Cylinders	n	6	

Estimated Engine Performance Data

Cylinder Peak Pressure	Pmax	75	bar
Peak Pressure Phase (ATDC)	Alpha	6	deg
Break Mean Effective Pressure	BMEP	6.0	bar
Engine Power at the Given Speed	P	35.4	hp
Engine Torque at the Given Speed	T	27.5	Nm

FIG. 10

FIG. 11 OAV JP8 opoc Engine Families

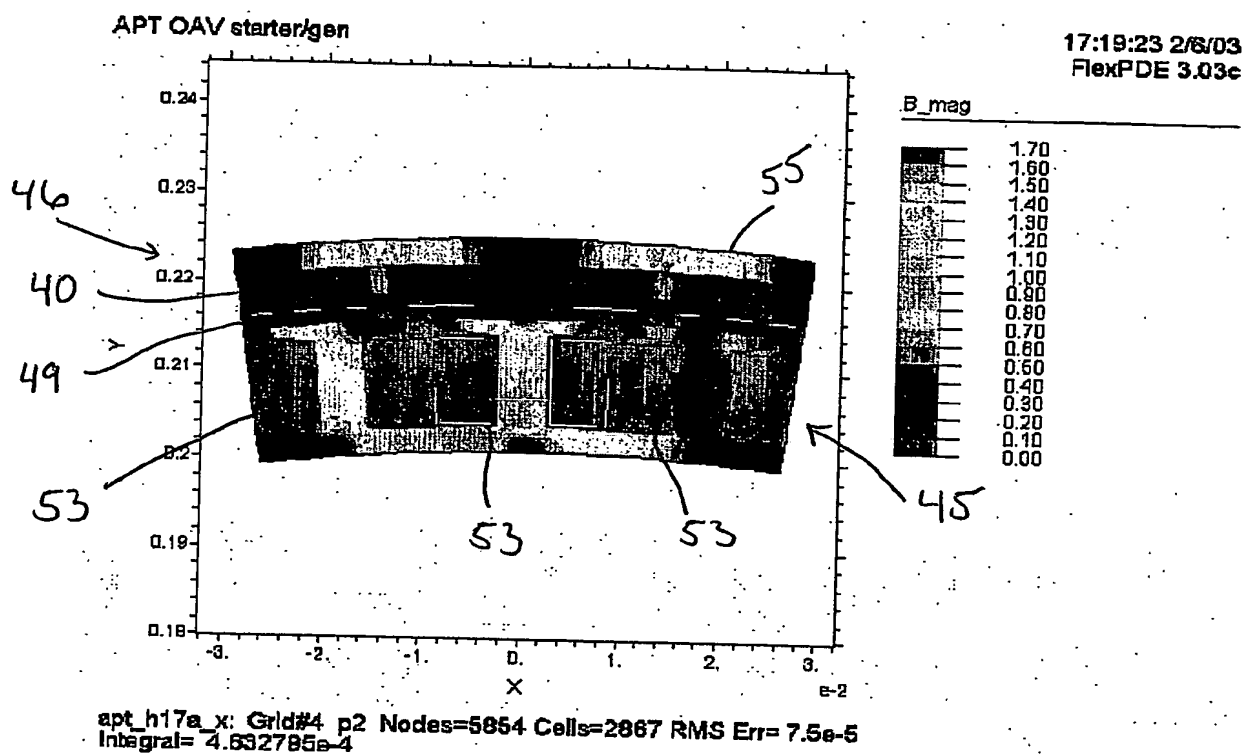
FAMILY 1a (preferred, the lightest) two-cylinder units - opoc module, two gear-set												
Cyl.	Mach	Speed	MPS	Piston Stroke		Power		opoc Weight		BSFC		Transmission
Nr.	Nr.	rpm	m/sec	cm	in	hp	kW	g	lbs	g/kWh	lbs/hp-hr	%
2	0.85	12500	11.0	2.64	1.04	9	6.7	1825	4.0	500	0.822	17%
4	0.85	12500	11.0	2.64	1.04	17	12.7	3950	8.7	480	0.789	18%
6	0.85	12500	11.0	2.64	1.04	42	31.3	7743	17.1	490	0.707	20%
											Planetary Transmission	
											Direct drive	
											Gear-ratio: 1 =	
											Gear-ratio: 1 =	
											0.66	
											0.39	

FAMILY 1b (only one standardized-cylinder unit - opoc module, but three gear-set)												
Cyl.	Mach	Speed	MPS	Piston Stroke		Power		opoc Weight		BSFC		Transmission
Nr.	Nr.	rpm	m/sec	cm	in	hp	kW	g	lbs	g/kWh	lbs/hp-hr	%
2	0.68	10000	10.0	3.00	1.18	9	6.7	3150	6.9	450	0.740	19%
4	0.68	10000	10.0	3.00	1.18	17	12.7	6350	14.0	430	0.707	20%
6	0.748	11000	11.0	3.00	1.18	42	31.3	9550	21.1	400	0.658	21%
											Direct drive	
											Gear-ratio: 1 =	
											2.08	
											Gear-ratio: 1 =	
											0.45	

FAMILY 2 (two-cylinder units - opoc modules, one gear-set, no 6 cylinder)												
Cyl.	Mach	Speed	MPS	Piston Stroke		Power		opoc Weight		BSFC		Transmission
Nr.	Nr.	rpm	m/sec	cm	in	hp	kW	g	lbs	g/kWh	lbs/hp-hr	%
2	0.85	12500	11.0	2.64	1.04	9	6.7	1825	4.0	500	0.822	17%
2	0.85	8300	11.0	3.98	1.57	17	12.7	5125	11.3	400	0.658	21%
4	0.85	8800	11.0	3.98	1.57	42	31.3	10900	23.4	380	0.625	23%
											Direct drive	
											Direct drive	
											Gear-ratio: 1 =	
											0.59	

FAMILY 3 (three-cylinder units - opoc modules, all direct drive and 2 cylinders)												
Cyl.	Mach	Speed	MPS	Piston Stroke		Power		opoc Weight		BSFC		Eff
Nr.	Nr.	rpm	m/sec	cm	in	hp	kW	g	lbs	g/kWh	lbs/hp-hr	%
2	0.85	12500	11.0	2.64	1.04	9	6.7	1825	4.0	500	0.822	17%
2	0.85	8300	11.0	3.98	1.57	17	12.7	5125	11.3	400	0.658	21%
2	0.85	4900	11.0	6.73	2.65	42	31.3	24950	55.0	340	0.559	25%
											Direct drive	
											Direct drive	
											Direct drive	

FIG. 12



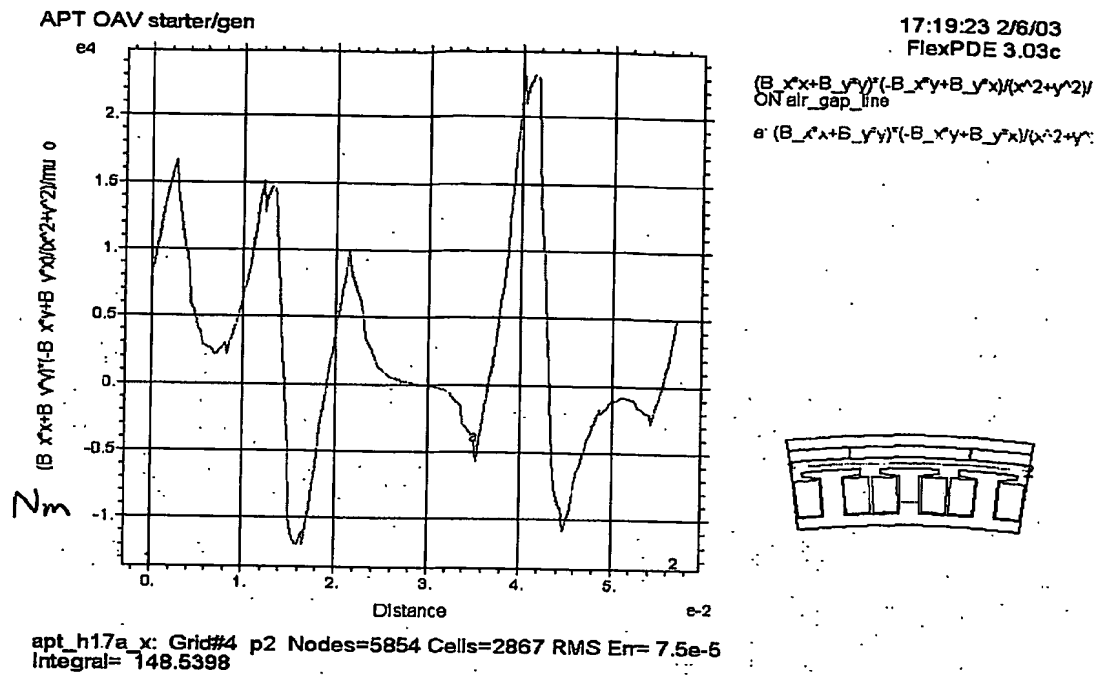


FIG. 13

**This Page is Inserted by IFW Indexing and Scanning
Operations and is not part of the Official Record**

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☐ **BLACK BORDERS**
- ☐ **IMAGE CUT OFF AT TOP, BOTTOM OR SIDES**
- ☐ **FADED TEXT OR DRAWING**
- ☒ **BLURRED OR ILLEGIBLE TEXT OR DRAWING**
- ☐ **SKEWED/SLANTED IMAGES**
- ☐ **COLOR OR BLACK AND WHITE PHOTOGRAPHS**
- ☐ **GRAY SCALE DOCUMENTS**
- ☐ **LINES OR MARKS ON ORIGINAL DOCUMENT**
- ☐ **REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY**
- ☐ **OTHER:** _____

IMAGES ARE BEST AVAILABLE COPY.

As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.